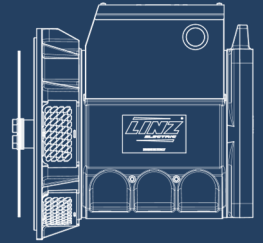


PRO18S A/4

Three-Phase brushless synchronous alternator with AVR - 4 poles



COMMON DATA

Rated Power at 50Hz	kVA	20	
Rated Power at 60Hz	kVA	25	
Rated Power Factor		0.8	
Nominal Temperature	°C	40	
Control System		self-excited	
Execution		Brushless	
Regulation Type		AVR	
Insulation Class		H	
Protection		IP23	
Maximum Over speed	rpm	2250	
Overload		110% of rated power for one hour in a cycle of 6 hours	
Air Flow Requirement	m ³ /min	5.5 at 50Hz	6.5 at 60Hz
R.F.I. Suppression		Standard EN55011	

REGULATION DATA

AVR	HVR11	HVR30
Sensing	single-phase	three-phase
Voltage Regulation	±1%	±1%
Sustained Short Circuit	> 250% of rated current	

WINDING DATA

Stator Winding		Double layer with auxiliary winding
Rotor Winding		with damping cage
Winding Pitch		2/3
Number of Leads of Stator		12
Stator Winding Resistance	Ω	0.224 at 20°C
Rotor Winding Resistance	Ω	2.43 at 20°C
Exciter Stator Resistance	Ω	15 at 20°C
Exciter Rotor Resistance	Ω	0.72 at 20°C
THD at full load		< 3.5%
THD at no load		< 3%
Excitation at no load	A _{dc}	0.92
Excitation at full load	A _{dc}	2.2



REFERENCES

EN60034-1 ISO8528-3 EN55011

ON REQUEST:

UL 1446, Systems of Insulating Materials - General CSA-C22.2 No. 0, Appendix B, General Requirements - Canadian Electrical Code,

CAN/CSA - C22.2 No. 100-14 (R2009) Motors and Generators, UL1004-1 2nd ed. Rotating Electrical Machines - General Requirements, UL1004-4 2nd ed. Electric Generators

ELECTRICAL DATA @50Hz

Frequency		50Hz - 1500rpm				
Voltage	V	3 Phase Series High WYE				1 Phase Reconnected Double Delta
		380/220	400/230	415/240	440/254	115/230
Rated Power in Class H (125°C/40°C)	kVA	20	20	20	18	13
	kW	16	16	16	14.4	10.4
Rated Power in Class F (105°C/40°C)	kVA	18.5	18.5	18.5	17	12
	kW	14.8	14.8	14.8	13.6	9.6
Rated Power Standby (150°C/40°C)	kVA	22	22	21.5	20	14.5
	kW	17.6	17.6	17.2	16	11.6
Rated Power Standby (163°C/27°C)	kVA	23	23	22.5	21	15
	kW	18.4	18.4	18	16.8	12

EFFICIENCY IN CL. H OF RATED POWER @50Hz - 0.8 P.F.

4/4 (100%)	85.7%	86.1%	85.9%	85.8%
3/4 (75%)	86.4%	86.3%	86.1%	85.4%
2/4 (50%)	85.9%	85.6%	84.8%	83.2%
1/4 (25%)	81.1%	80.3%	78.7%	75.5%

REACTANCES AND TIME CONSTANTS @50Hz

pcc		0.57		
X _d	- dir. axis synchronous	268%	242%	225% 180%
X' _d	- dir. axis transient	21.1%	19.0%	17.7% 14.1%
X'' _d	- dir. axis subtransient	10.0%	9.0%	8.4% 6.7%
X _q	- quad. axis reactance	147%	133%	124% 99%
T' _{do}	- O.C. field time constant	103ms		
T' _d	- Transient time constant	7ms		
T'' _d	- Sub-transient time constant	5ms		

ELECTRICAL DATA @60Hz

Frequency		60Hz - 1800rpm				
Voltage	V	3 Phase Series High WYE				1 Phase Reconnected Double Delta
		415/240	440/254	460/266	480/277	138/277
Rated Power in Class H (125°C/40°C)	kVA	21	23	24	25	16.5
	kW	16.8	18.4	19.2	20	13.2
Rated Power in Class F (105°C/40°C)	kVA	20	21	22	23	15
	kW	16	16.8	17.6	18.4	12
Rated Power Standby (150°C/40°C)	kVA	24	25	26	27	18
	kW	19.2	20	20.8	21.6	14.4
Rated Power Standby (163°C/27°C)	kVA	25	26	27	27.5	18.5
	kW	20	20.8	21.6	22	14.8

EFFICIENCY IN CL. H OF RATED POWER @60Hz - 0.8 P.F.

4/4	87.3%	87.5%	87.8%	87.6%
3/4	87.8%	88.0%	88.2%	88.0%
2/4	87.1%	87.4%	87.6%	87.3%
1/4	82.3%	82.7%	82.9%	82.4%

REACTANCES AND TIME CONSTANTS @60Hz

pcc				0.55	
X _d	- dir. axis synchronous	283%	276%	263%	252%
X' _d	- dir. axis transient	22.3%	21.7%	20.7%	19.8%
X'' _d	- dir. axis subtransient	10.6%	10.3%	9.8%	9.4%
X _q	- quad. axis reactance	156%	152%	145%	139%
T' _{do}	- O.C. field time constant	103ms			
T' _d	- Transient time constant	7ms			
T'' _d	- Sub-transient time constant	5ms			

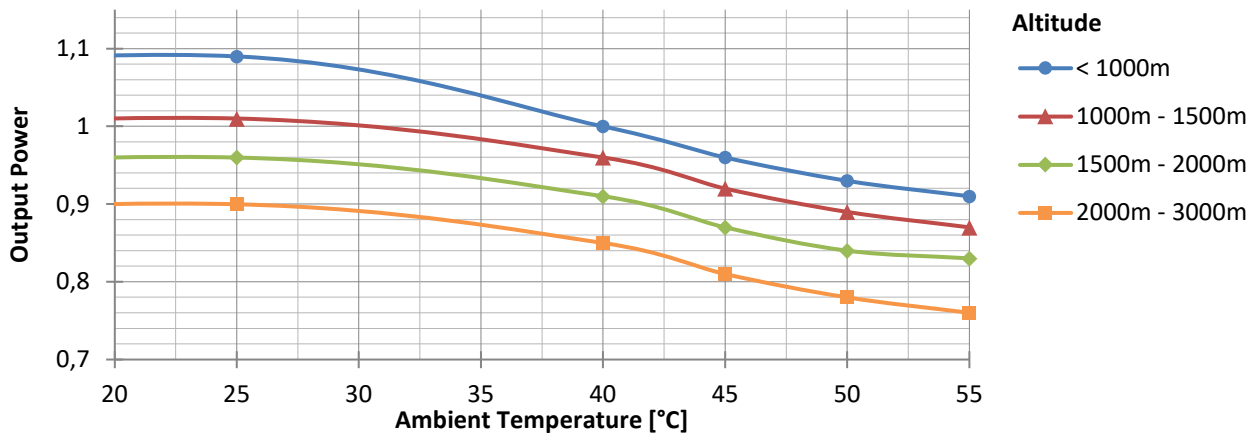
MECHANICAL DATA

Bearing non drive end	6307-2RS-C3		
Bearing drive end (B3/B14 form)	6309-2RS-C3		
Weight of generator	in B2	kg	121
	in B3/B14	kg	123
	in B3/B9	kg	/

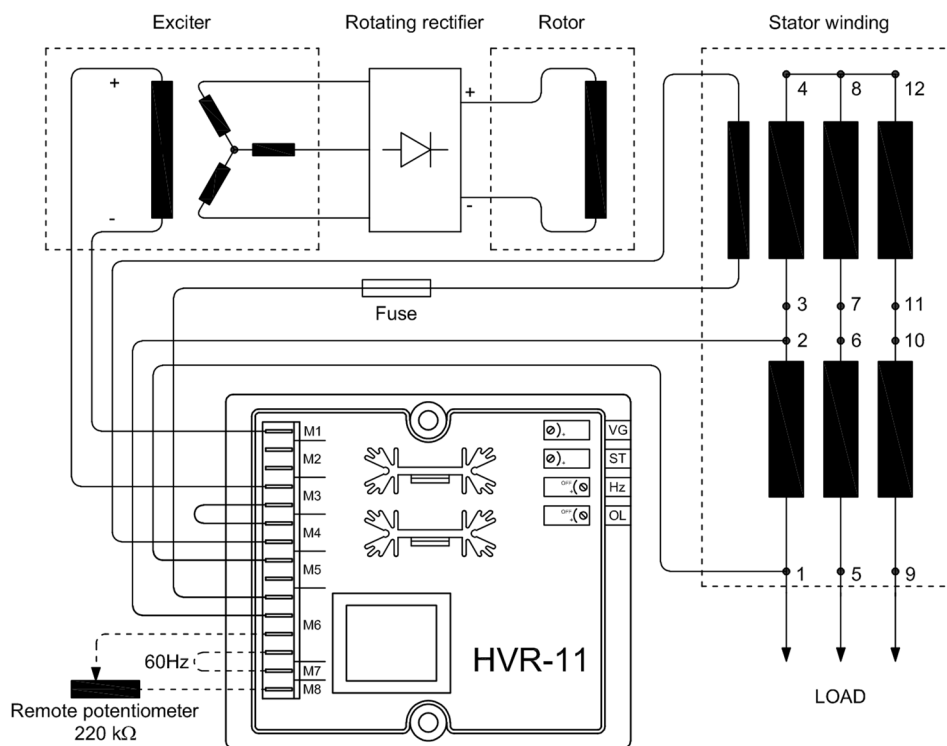
MOMENT OF INERZIA

SAE 6½	kg·m ²	0.177
SAE 7½	kg·m ²	0.180
SAE 8	kg·m ²	0.189
SAE 10	kg·m ²	0.205
SAE 11½	kg·m ²	0.225
B3/B14	kg·m ²	0.172

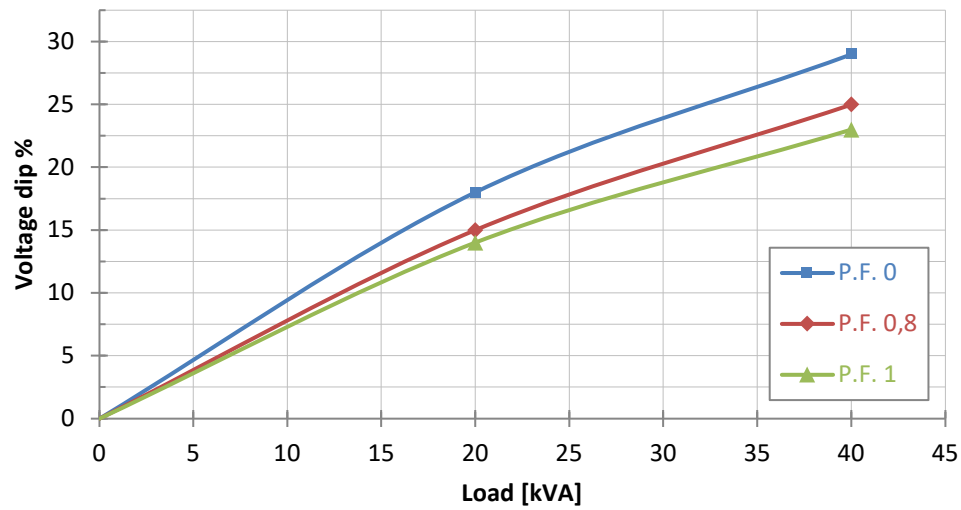
DERATING CURVES



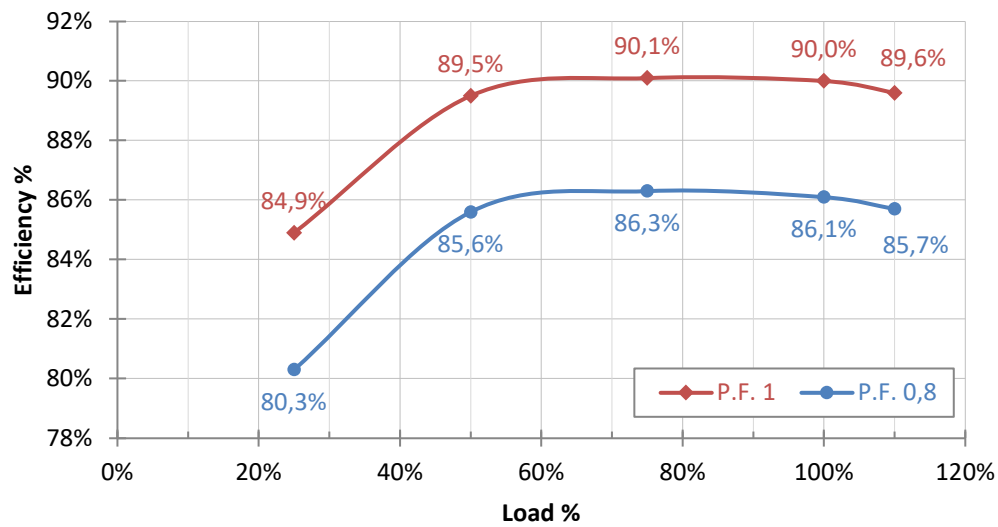
WIRING DIAGRAM



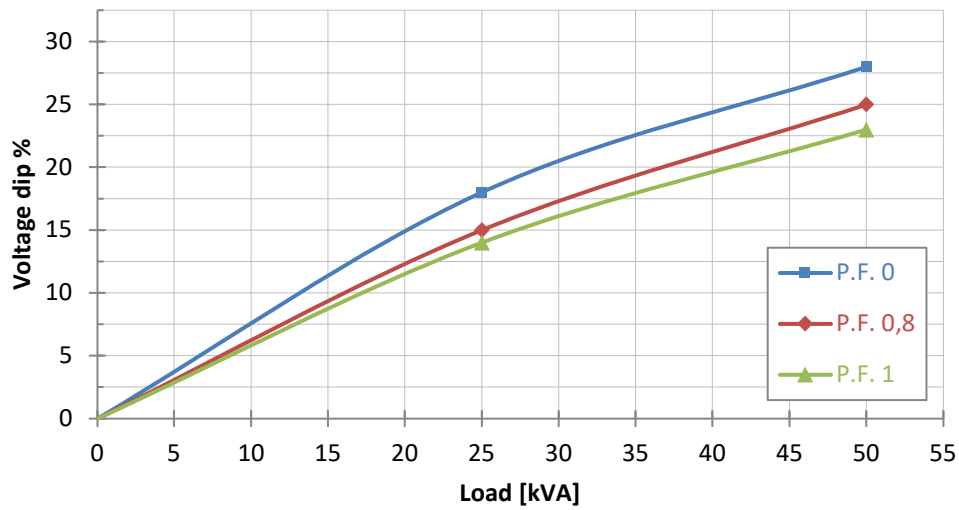
TRANSIENT VOLTAGE VARIATION @50Hz - 230/400V



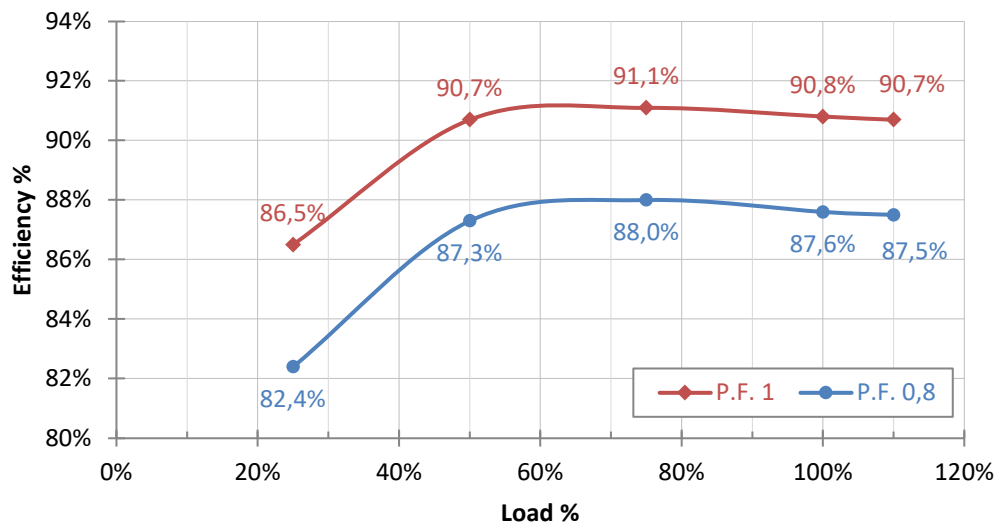
EFFICIENCY CURVES @50Hz - 230/400V



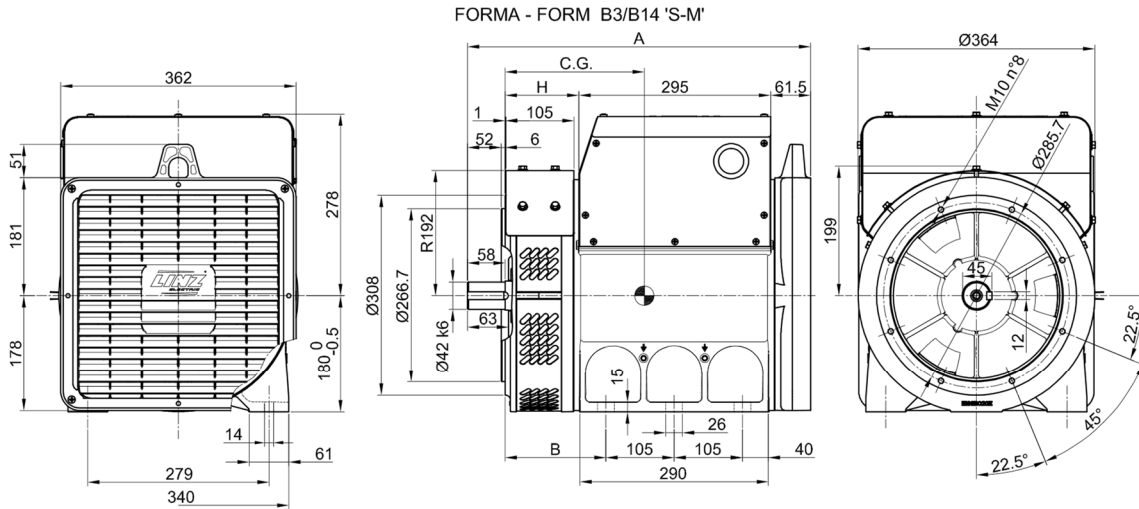
TRANSIENT VOLTAGE VARIATION @60Hz - 277/480V



EFFICIENCY CURVES @60Hz - 277/480V

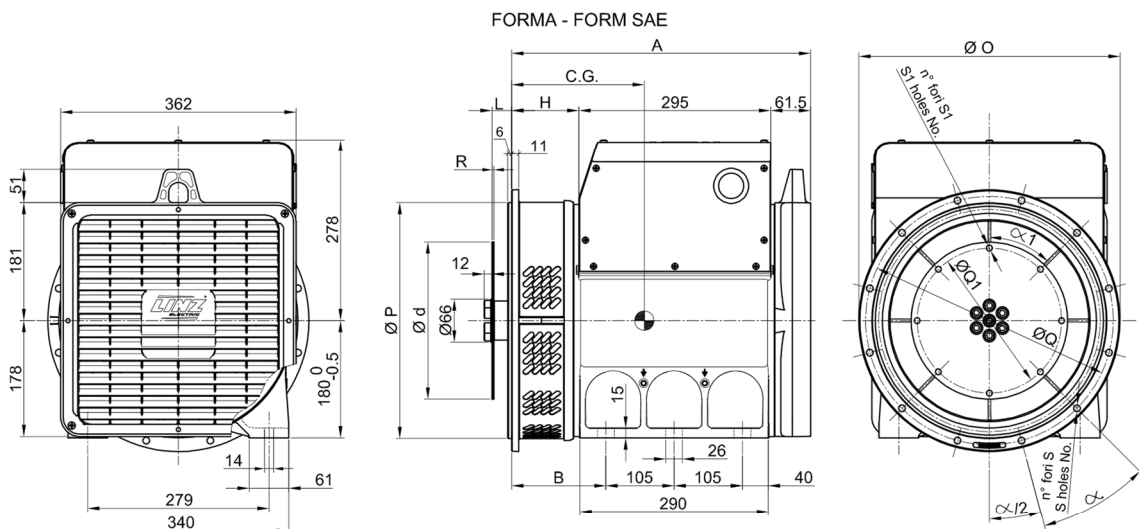
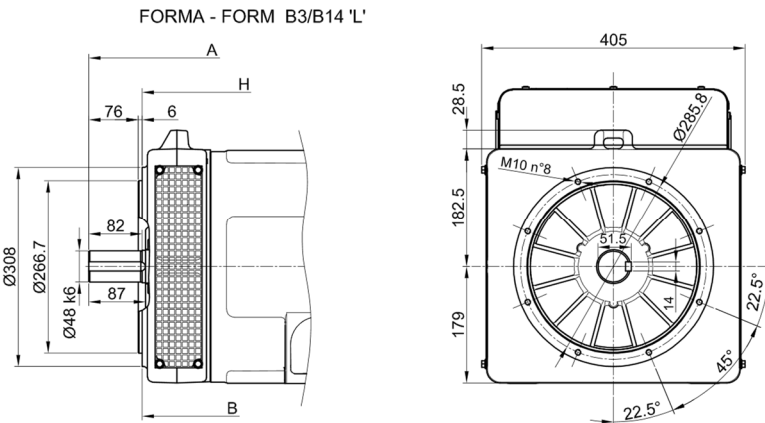


OVERALL DIMENSIONS



TIPO - TYPE	C.G.
PRO18S A/4 B3/B14	217
PRO18S B/4 B3/B14	221
PRO18S C/4 B3/B14	228
PRO18M D/4 B3/B14	251
PRO18M E/4 B3/B14	262
PRO18L F/4 B3/B14	301
PRO18L G/4 B3/B14	318

TIPO - TYPE	C.G.
PRO18S A/4 SAE	213
PRO18S B/4 SAE	217
PRO18S C/4 SAE	223
PRO18M D/4 SAE	246
PRO18M E/4 SAE	257
PRO18L F/4 SAE	296
PRO18L G/4 SAE	313



FORMA - FORM		A	B	H
B3/B14	PRO 18S	528	155	113,5
	PRO 18M	598		183,5
	PRO 18L	734	260	295,5
SAE	PRO 18S	460	145	103,5
	PRO 18M	530		173,5
	PRO 18L	642	250	285,5

SAE N.	FLANGIE - FLANGES - BRIDAS					
	Ø O	Ø P	Ø Q	n. fori holes No.	S	α
5	356	314,3	333,4	8	11	45°
4	402	362	381	12		30°
3	451	409,6	428,6			
2	490	447,7	466,7			

SAE N.	GIUNTI A DISCO - COUPLING DISCS - JUNTAS A DISCOS						
	L	Ø d	Ø Q1	n. fori holes No.	S1	α 1	R
6 1/2		215,9	200	6	10,5	60°	3
7 1/2	30,2	241,3	222,25	8		45°	
8	62	263,52	244,47	6		60°	
10	53,8	314,32	295,27	8		45°	
11 1/2	39,6	352,42	333,37	8		45°	